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these southern colonies had been neglected, as they had never been regarded as a factor of national importance; but this action of Roca brought to notice the fact that civilization was spreading to them." It was a good and useful thing that Julio Roca did when he listened to the appeal of an outcast region, condemned through misunderstanding by a world that needs all its outcast regions.

GEOGRAPHICAL RECORD

THE AMERICAN GEOGRAPHICAL SOCIETY

MEETING OF THE SOCIETY. A regular meeting of the Society was held at the Engineering Societies' Building, No. 29 West Thirty-ninth Street, on Tuesday evening, November 22, 1910. Vice-President Greenough in the chair.

The following persons recommended by the Council, were elected to Fellowship:

Taylor More,	George Blumenthal,
S. Emerson Findley,	C. Bayard Staples,
George H. Middlebrook,	Lee S. Burrridge,
Emil Mosonyi,	James G. Cannon,
George H. Partridge,	Frederick H. Eaton,
James S. Camp,	Henry St. John Hyde,
Howard F. Chappell.	

The Chairman then introduced Mr. Frederick Monsen, who addressed the Society on "A Journey from Vera Cruz to Mitla." Stereopticon views were shown. The Society then adjourned.

NORTH AMERICA

DR. HAYES AT PANAMA. Dr. C. Willard Hayes, geologist of the U. S. Geological Survey, has been visiting Panama, by the direction of President Taft, to make a preliminary study of the geological formations in the Canal Zone, with special reference to the excavations at the Culebra cutting.

Upon the results of his investigations will depend the decision whether a geologist will be permanently assigned to assist the Canal Commission.

THE HUDSON BAY RAILROAD. As the BULLETIN has already announced, the starting point of the line to Hudson Bay is to be the crossing of the Saskatchewan River at Pas Mission. From this point, *United Empire* says, it is not yet entirely decided where the road shall strike Hudson Bay. It will be built northeastward to the bay, either to Fort Churchill (477 miles) or to Port Nelson (410 miles), the latter route being favored by the engineers who carried out the survey, the distance being shorter, the difficulties less serious, the region passed through being better suited to development and the harbor having an advantage in other important respects. The Nelson route is estimated to cost \$22,500,000 for railroad and harbor works, about \$5,000,000 less than the other

route. On the Bay everything will have to be created, not merely a town built but the numerous accessories involved in the opening of a new ocean route provided. The southwestern terminus as yet has no center of population. Saskatoon, the nearest center of any size, is 250 miles remote as is the nearest point on the Grand Trunk Railroad. The farmers of West Canada, however, enthusiastically support the project, which they declare will vastly benefit the great grain lands of the Dominion and they say the road should be built immediately by the Government.

LECTURES AT COLGATE UNIVERSITY. The public lectures of the Department of Geology and Biology at Colgate University, during the Winter will be by Pres. E. B. Bryan, "The Philippine Islands"; Dr. L. A. Bauer, "The Magnetic Survey of the Globe, and the Work of the Yacht Carnegie"; Prof. R. DeC. Ward, of Harvard, "The Coffee Country of Brazil With Special Reference to Climate" (results of observations in the past Summer); Prof. Herbert E. Gregory, of Yale, "Explorations in the Navajo Reservation" (during the past two seasons); Prof. A. P. Brigham, "Geographical Influences in the History and Commerce of the Italian Cities"; and Prof. W. M. Chester, "The Bermudas,—the Islands and Their Life" (Studies in 1909 and 1910 with Harvard Expeditions).

SOUTH AMERICA

CHILE'S GREAT RAILROAD LINE. The late Pres. Montt, in his last message to the Chilean Congress, expressed the hope that in four years the entire railroad line, between Puerto Montt and Pisagua, about 1,550 miles in an air line, would be in operation. The last session of Congress voted over \$2,000,000 for carrying on the work of building this railroad to the north of Santiago. A British syndicate has this work in progress. At Lagunas the system of nitrate railroads will be used to extend the road to Arica. Meanwhile, the railroad from Arica over the Cordilleras to La Paz, Bolivia, is rapidly building. To the south of Santiago, the railroad has been in operation for some years, as far as Osorno and in June last work began on the stretch of about 100 miles, which will connect the far southern port of Puerto Montt with Osorno and thus complete the southern section of the line, which, extending along the western foothills of the Cordilleras and through the Great Valley of Chile, will give uninterrupted railroad service, north and south, to the most important part of the Republic. (Condensed from *Pet. Mitt.*, 56 Jahrg., 11 Halbband, 4 Heft. 1910.)

SOUTH AMERICAN RAINFALL TYPES. With the object of making a map of the rainfall provinces of South America simple enough for general use, and yet accurate enough for scientific presentation, William Gardner Reed, Jr., has studied all available rainfall maps and rainfall data for South America (*Quart. Journ. Roy. Met. Soc.*, Jan., 1910). The monthly rainfall of each station, expressed in hundredths of the annual mean, was shown by means of a curve on a small coordinate card, and this card was then fastened to a large map (8 ft. x 5 ft.) of South America. (The map itself was drawn on a screen from the projection of a lantern slide made from the Kiepert map.) The rainfall provinces were then marked out, at first by means of strings hung on the map by pins. This method made it possible to shift the boundaries until the most satisfactory provinces were obtained. A comparison of the resulting subdivisions with previously published maps is made. The author concludes that the map

of Voss (*Pet. Mitt.*, 1907,) is the most accurate yet published, and "that this map, with a few minor corrections, shows the rainfall relations of South America as far as they can be determined by the present data." R. DEC. W.

AFRICA.

HYDROGRAPHIC MISSION IN FRENCH EQUATORIAL AFRICA. Mr. Roussilhe, chief of the Congo-Ubangui-Sangha Mission, with several engineers and surveyors, left Paris on Oct. 23, for Africa to carry out hydrographic studies along these three rivers, particularly at the Falls of Zongo at the head of navigation on the lower Ubangi. Their work includes the study of river regulation for transportation purposes and of the development of the Port of Brazzaville.

THE MURDER OF LIEUTENANT BOYD ALEXANDER. The London *Times* prints details of the murder of this explorer (*Bulletin*, July, p. 527), who was killed in Wadai while on an important expedition across Africa. The explorer and his Portuguese collector José had reached a place called Tama, late at night. The local chief summoned them to his presence and Lieut. Alexander replied that he would see the chief on the following morning. Soon after, a number of persons came to his camp, which was just outside the town, and declared their intention of taking the explorer to the chief. One of the men laid hands on the British officer, who pushed him off, whereupon a small boy who was standing by, seized a gun and fired at the explorer, who fell to the ground. The crowd then set upon him and ended his life. Four natives then seized José and wrenched a ring from his finger. He said he would remove another ring which they wanted, but as soon as he was released, he seized his gun, fired two shots at his assailants and, jumping on his horse, made his escape. The attitude of the Tarna people was, doubtless, due to the fact that they had had trouble with the French and, hearing of the arrival of an unknown white man, they expected further hostilities.

LAKE DILOLO. During the recent survey of the Belgian Congo-Portuguese Boundary in the neighborhood of Lake Dilolo, it was found, according to *Le Mouvement Géographique*, that this lake which for years has been only a wide swampy region, bids fair in time, entirely to dry up. Its hydrographic relations are now wholly with the Zambesi. Ever since its discovery this Lake has seemed to be so exactly balanced on the Zambesi and Congo water parting that it was believed to be tributary to both river systems.

ASIA

CHINESE TOPOGRAPHICAL MAPS. The Chinese Government, through its Land Survey Bureaus at Peking and Nanking is issuing sheets containing the results of the topographic surveys, which it is beginning to make. Very little is yet known of the activity of these native survey bureaus except through the map sheets which they are issuing. The Government is not yet selling the sheets to the public, but a number of them have been sent to Europe. A part of the sheet "Tai-Ping-Tji" is produced in the *Zeitschrift* of the Berlin Geographical Society (No. 4, 1910) and is accompanied by a short description, written by Dr. M. Groll.

This sheet is from the map of the Kiang-su Province. The whole Province on both sides of the Yang-tse River is being topographically surveyed and mapped on the unusually large scale of 1:20,000. The sheets are printed in

black only, and though they give a great deal of detailed information, the work lacks the refinement seen on the topographic sheets of most of the western countries. China has never before printed so much detail on her maps and so accurately shown it; but that the greatest accuracy has not been sought seems evident from the fact that the surveyors were only twenty days in securing the data for the sheet Foschan, in which many mountains are shown. The surveyors appear to have determined only a limited number of elevations and connected these points by contours only approximately accurate, sketching them in with a free hand. It is evident, however, that these contours of elevation are a very fair generalization of the surface features. For example, the mountain chains to the east of Nanking and the volcanic territory on the north shore of the Yang-tse River are well characterized.

The sheets use many symbols to differentiate plowed lands, forests, rivers, bridges, dams, telegraph and railroad lines, first class and common highways, etc. The street plans of the larger cities are given, but the positions of smaller settlements are merely indicated. Unfortunately, all the names and the explanatory text appear only in Chinese characters, though Arabic figures are used for heights.

Dr. Groll says that as these surveys progress they will doubtless bring to us many surprises. For example, the maps he has examined show that a certain area along the lower Yang-tse, has been diked, canalized and inhabited, though the latest British Admiralty chart marks this region as covered by water.

AUSTRALASIA AND OCEANIA

VOLCANIC ACTIVITY ON HEARD ISLAND. A communication to the Paris Geographical Society announces that Capt. Dasté, master of the ship *Mangoro*, while passing Heard Island in March last, observed that its highest peak, which in 1874 received the name of Kaiser Wilhelm Berg was in complete volcanic activity and immense clouds of smoke were rising high in the air. This island, which lies in the Indian Ocean about 300 miles southeast of the Kerguelen Islands, had been last visited on Feb. 3, 1902, by the German South Polar Expedition. When the *Challenger* Expedition visited the Island in 1874, traces of volcanic activity were found.

It is noteworthy that 17 miles N.N.E. of Bligh's Rock, a small island belonging to the Kerguelen group, a depth of only about 60 feet is found, which is proof of the great extent of the submarine plateau of which the Kerguelen Islands form the highest part. (*Zeitsch. Gesell. f. Erdk. zu Berlin*, No. 8, p. 529, 1910).

TRANS-CONTINENTAL RAILROADS IN AUSTRALIA. The *United Empire* (vol. i, No. 2, 1910) says that the plan to connect Port Augusta, South Australia, with Coolgardie, Western Australia, by rail and thus complete the east-west trans-continental line is a sound financial project and the building of the road is not likely to be delayed. The distance to be covered is 1,063 miles. A Commission on which the Commonwealth and the two states above mentioned were represented has made a detailed survey of the route and estimates the cost at about \$20,000,000. The line, which bids fair to pay its way, would bring the people of the eastern states two or three days nearer to London, facilitate the prospecting of a region of mineral possibilities, serve the expanding Tarcoola mining field and promote Australian national feeling, for the people of Western Australia regard their isolation from the eastern states as a real grievance.

EUROPE

THE GERMAN COLONIAL CONGRESS. Der Deutsche Kolonialkongress, 1910, held its meeting in the Reichstag building, Berlin, on Oct. 6-8, under the presidency of Prince Johann Albrecht of Mecklenburg. The attendance, as usual, was large, including many active field participants in the work of development and students of colonial affairs. Besides the general sessions of the Congress, the programme was divided among seven sections holding simultaneous meetings: (1) Geography, Ethnology and Natural History of the Colonies and over-sea Interests; (2) Tropical Medicine and Hygiene; (3) The Legal and Political Conditions of the Colonies; (4) The Religious and Cultural Conditions of the Colonies; (5) The Economic Conditions of the Colonies; (6) Settlement in the German Colonies and Emigration to foreign Lands; (7) Economic Relations of Germany and her Colonies with other Lands. Ten addresses were made in the general meetings and 63 papers were read in the sections.

THE ROYAL COLONIAL INSTITUTE. The Duke of Connaught has become President of the Royal Colonial Institute in succession to King George V who occupied that position while Prince of Wales and who is now Patron of the Institute.

A SWISS NATIONAL PARK. It is gratifying to see that the liberal policy of our Government in setting aside reservations to be kept in a state of nature as public recreations grounds is exciting attention and imitation abroad. Prof. Conwentz of Dantzig has been especially active in arousing interest in natural monuments throughout Germany, and now, as we read in *Globus*, a society in Stuttgart has issued a brochure on "Naturschutzparke in Deutschland und Oesterreich," with the object of furthering the preservation of selected areas in their natural condition. In Switzerland there is a "Naturschutzkommission," in which the zoological explorers, Fritz and Paul Sarasin of Basel, have leading parts. An inventory of "Naturdenkmäler" has been made, including even exceptionally fine trees and unusually large erratic blocks; and from the beginning of 1910, a national park, the first in Switzerland, has been created by setting aside the lofty Val Cluozza in the Lower Engadine, from all commercial uses. No pasturing animals are there to be seen, no gun or ax is to be heard. Access to the park is had from the village of Zernez. The enclosed valley has a great vertical range, and consequently a full representation of floral zones. In this connection an interesting problem arises as to the effect that a century or more of summer pasturing on the grassy slopes above the forests may have had in exterminating plants that cannot endure annual cropping; the change in the proportion of different plants in the former pasture zone of the Cluozza park will, therefore, be closely watched, and the new-comers will be regarded as returning exiles.

W. M. D.

A MONUMENT TO THE MEMORY OF DR. HAMY. A large committee has been organized under the patronage of Prince Albert of Monaco, to raise funds for the erection of a monument to the distinguished anthropologist, the late Theodore J. E. Hamy, at his birthplace, Boulogne-sur-Mer.

POLAR

LIEUT. FILCHNER'S ANTARCTIC EXPEDITION. A Reuter despatch says that this German explorer announced, at a meeting of German naturalists in Königsberg, that the start of his Antarctic expedition could with certainty be fixed for the

spring of 1911. He added that he had agreed with Captain Scott who will start from Ross Sea for the Pole, while Lieut. Filchner's base will be the Weddell Sea, that, if the expeditions meet in the center of the Antarctic, some of Captain Scott's party will accompany him while a detachment of his own party will go with Captain Scott.

STEFANSSON AND ANDERSON IN THE ARCTIC. The latest letters received by the American Museum of Natural History, from Messrs. V. Stefánsson and R. M. Anderson, reveal a story of hardship and of sturdy effort, whose results were at least delayed, in part, by storm and illness. The expedition left New York, in May, 1908, its main object being to make a scientific study of little-known Eskimos, especially those tribes east of the Mackenzie River at Coronation Gulf with its Coppermine River, and on Victoria Land to the north, where there are opportunities to study tribes wholly uninfluenced by the white race. The study of the Eskimos is especially in the hands of Mr. Stefánsson, while Dr. Anderson carries on a zoological survey and makes collections of mammals, birds and fish.

The party had expected to go to the eastern Eskimo tribes, by whaling ship, but as no whaler visited the region for a year, the expedition was forced to spend the first winter in the lower Colville region, where game was very scarce and the party had an uncomfortable experience. As a matter of fact, supplies sent to the explorers by the Museum, which left San Francisco on April 24, 1909, had not yet reached the expedition in the spring of 1910, when the last letters were sent out.

The party came safely through the difficulties of the winter and their main energies in the summer of 1909 were spent in getting eastward. Mr. Stefánsson succeeded in getting as far east as Cape Parry and intended to make a dash from there for the Coppermine River at the opening of last Spring. His letter gives many details of the serious deprivations of last winter, due to insufficient clothing, a very small stock of provisions and the scarcity of game. The letter reports that in March last all were "in fit condition showing no serious after effects," and that Mr. Stefánsson was expecting to start with his party, during the first week in April, for the Coppermine. The expedition is expected to come out of the field soon.

Upon his return here, Mr. Stefánsson will have five years' knowledge of the Eskimo. He has accomplished much in getting records of songs and folklore, working to ascertain definitely, the presence and variations of certain folktales throughout the tribes. He has complete lists of words used by the Shamans in ceremonials, a large series of head measurements and many photographs. Mr. Anderson is expected to bring back many specimens of Arctic fauna. The sum total of results attained by the explorers will doubtless possess much value.

INLAND ICE OF THE ARCTIC REGIONS. In a recent paper Prof. W. H. Hobbs presents a summary of our knowledge of the conditions of the inland ice of the Arctic regions (*Proc. Amer. Phil. Soc.*, vol. xlix, 1910, pp. 57-129). He first discusses the causes which bring about the necessary snowfall and then discusses individual areas, primarily the ice-caps of Norway, Iceland, Franz Josef Land, Spitzbergen and Greenland. The islands of Franz Josef Land are the most arctic in their aspect of all the smaller northern land masses, and, with the exception of these islands, all the northern ice sheets are smaller than the land

masses upon which they rest. Naturally, the greatest attention is paid to the largest of these areas of inland ice, that of Greenland, and in this part of the paper much attention is paid to discussion of the modes of accumulation of the ice, the condition of the interior, and the characteristics of the margins, with quotations and references to various papers upon the subject. Prof. Hobbs has done a service in presenting within the compass of a single paper a summary of some of the salient facts with regard to northern glaciation, having gathered them from a wide variety of sources in several languages. R. S. T.

CLIMATOLOGY

AUTOMOBILES AND CLIMATE. That railroad construction and operation is very markedly controlled by climate is obvious to anyone who looks into the question at all carefully, yet no systematic presentation of the facts in the case was attempted until Mr. Robert M. Brown published, a few years ago, his suggestive paper on this subject (*Journ. of School Geogr. II*, 1903, 178-190). The new method of travel and transportation, by automobile, has not yet shown very noticeable climatic controls, yet signs are not wanting that adjustments along these lines are coming. For example, the automobiles used on the Shackleton expedition were especially designed for travel over the Antarctic ice, and now comes the interesting statement, from the U. S. Consul at Johannesburg (*Consular and Trade Reports*), that manufacturers of American automobiles sent out to the Transvaal should regard climate if they wish to sell their machines. It is pointed out that, as the climate is for the most part very dry, wood, if used, must be well seasoned. Much difficulty has been experienced with wooden wheels made of materials not well seasoned. Bad roads are the rule, and as many small streams are encountered a high clearance is recommended. A good quality of paint must be used. A poor quality rapidly deteriorates in the hot, dry climate. R. DEC. W.

FREE AIR TEMPERATURES.—In the *Bulletin* of the Mount Weather Observatory, (Vol. II, Pt. 4, 1910), Prof. W. J. Humphries summarizes and discusses the "Vertical Temperature Gradients as Modified by Seasons and by Storm Conditions," basing his conclusions upon the results of European observations obtained by means of *ballons-sondes*. Curves are shown illustrating the average winter and summer gradients, and the average winter and summer storm gradients. It appears that a high barometer is generally accompanied by a cold isothermal region and a warm lower atmosphere, the latter extending from near the level of the upper inversion down to about two kilometers above the earth's surface in winter, and all the way down in summer. A low barometer is commonly associated with a warm isothermal layer and a cold lower atmosphere, the latter reaching the earth in summer but in winter extending down only to about the two kilometer level. These temperature inequalities seem to be due principally to the unequal radiating powers of moist and dry air. Moist air warms the air of the isothermal layer by a rapid supply of radiant energy, itself becoming cold in the process. Dry air, being a poor radiator, conserves its own heat, and itself remaining warm, allows the isothermal layer to grow cold because of the decrease in the supply of heat. R. DEC. W.

PHYSICAL GEOGRAPHY

THE NORTH ATLANTIC DEEP SEA EXPEDITION OF THE "MICHAEL SARS" IN 1910. The *Bulletin* announced (p. 126) the proposed Deep Sea Expedition in the At-

lantic during the past season for which the Norwegian Government donated the use of its research steamer *Michael Sars*. The expedition led by Sir John Murray and Dr. Johan Hjort, of the Department of Fisheries, Norway, left Bergen at the end of March and was at work for four months. A concise account of the results of the investigation from the pen of Dr. Hjort is printed in *Nature* (Nov. 10, 1910, pp. 52-55). The party followed the coasts of Europe and Africa down to Cape Bogador and made special investigations in the Bay of Biscay, the Bay of Cadiz and the waters between the Canary Islands and Africa. It then traversed the Sargasso Sea, touched at the Azores, proceeded to St. John's N. F., then crossed the Atlantic eastward to the south coast of Ireland and finally examined the waters between Scotland and the Faroes, so as to study the influence exerted by the Atlantic upon the Norwegian Sea.

The large number of observations and specimens cannot be properly described until they are well studied, but some information may be given here as to their nature and extent.

Temperature readings were taken at many depths and also water samples from all depths to determine salinity and specific gravity. It was found that there is a faint increase of temperature near the bottom at great depths, due possibly to the conduction of heat from the interior of the earth or a radium effect. Altogether 2,500 water samples, and 3,000 temperature readings were taken.

In the vertical net hauls, the special aim was to obtain material for comparing the plankton of the coast banks with plankton from purely oceanic waters and also to compare sub-tropical and boreal conditions of existence. The coast banks off Ireland, the west coast of Africa and the Newfoundland banks have a characteristic flora, which is sharply marked off from the oceanic flora, rich in species, but poor in individuals, which is met with in the central parts of the Atlantic, and especially in the Sargasso Sea. The samples from the more northerly waters show a greater quantity of plants than the sub-tropical portion of the ocean.

A large-sized model of the ordinary otter-trawl was used at various depths, and Dr. Hjort recommends it for investigations of the deep-water fish fauna. Essentially new types of fish were not taken, but the material brought up gives a good idea of the uniform fish fauna to be met with along the slopes of the coast banks of Europe and Africa. The hauls at great depths were few, but they indicate that the eastern deep ocean plain of the Atlantic is especially poor in all kinds of higher organisms and particularly in fish.

MONADNOCKS NEAR MONTREAL. St. Bruno Mountain has recently been described by John A. Dresser (Geology of St. Bruno Mt., Province of Quebec, Canada. Department of Mines, Geol. Surv. *Mem.* No. 7, Ottawa, 1910). It is one of the Monteregian Hills, which rise as monadnocks above the level plain of the St. Lawrence valley, and reach a height of 650 feet above the adjacent plain. St. Bruno, like Mt. Royal at Montreal, with its hilly rim and lowland center with lakes, is shown to be not an extinct volcano, but a resistant intrusive stock of plutonic igneous rock, surrounded by more resistant metamorphosed sediments. In origin it, therefore, resembles the Crazy Mountains at the base of the Rockies near Yellowstone Park. The age of intrusion is probably late Devonian.

L. M.

THE OWENS VALLEY EARTHQUAKE. The Earthquake of 1872 in Owens Val-

ley, Cal., discussed by W. H. Hobbs (*Beiträgen zur Geophysik*, Bd. X, Heft 3, 1910, pp. 352-385), is one of the larger North American earthquakes not previously described. W. D. Johnson, who did the field work, and W. H. Hobbs, who carefully compiled this account from the literature, in connection with Johnson's maps, photographs, and descriptions, deserve great credit for this painstaking discussion of an earthquake in a thinly-settled region and so long ago that its complete record was in danger of being lost. The shocks of 1872, some of the facts concerning which had previously been presented by J. D. Whitney, G. K. Gilbert, and E. S. Holden, are described in relation to the topography and geology of the Owens valley. The information concerning the shocks, sounds, aftershocks, and landslides is presented, as well as derangements of water flow and permanent geological changes. The latter include the relationships of the faults and fissures, which seem to have been remarkably well preserved in this desert climate for the thirty-five years between the time of the earthquake and 1907, when Mr. Johnson made the detailed fault maps which are such an unusual and desirable feature of this paper. L. M.

GENERAL

PETERMANN'S MITTEILUNGEN. Under the editorship of Prof. Paul Langhans, this geographical publication has been greatly enlarged and is serving more fully than ever, the aim of its founder, Dr. A. Petermann, who endeavored, as he wrote, to make it "an authentic chronicle of geographic science in the widest sense of the word." In his announcement for 1911, Prof. Langhans notes that in all the continents, not even excepting Europe, large areas are still unexplored. "We have very meager knowledge of the geologic structure of many countries, of their climate, of their flora and fauna. The available material in ethnography is very incomplete and this condition should be remedied, because aboriginal peoples are rapidly losing their individuality. A new era of discovery has also dawned for the Polar regions." The *Mitteilungen* is obtaining a large number of original reports and summaries of new explorations in all parts of the world. In doing this, it is not sacrificing its high scientific character and is giving more attention than ever to the publication of original papers dealing with all phases of geographical science. It records in each number many contemplated exploratory enterprises, the book reviews and monthly list of "new publications" are comprehensive, and the monthly cartographic record of newly published maps, containing about 1,200 entries a year, is invaluable to geographic workers. The thoroughness with which this publication is now covering the field of geography, merits the appreciation of all workers in this wide study.

ANSWERS TO CORRESPONDENTS. The following answers are given to several correspondents who have sent questions to the *Bulletin*:

"Please tell me where I may get information about the earthquake of 1811 and 1812. C. H. F., Wappingers Falls, New York."

The series of earthquakes to which you refer are known as the New Madrid Earthquakes and occurred in what is now Southeastern Missouri and Northeastern Arkansas in 1811-12. These shocks are well described by G. C. Broadhead (*Amer., Geol.* vol. xxx. 1902, pp. 76-87); and by E. M. Sheppard (*Journ.*

of *Geol.*, vol xiii, 1905, pp. 45-62). There is a concise description of the New Madrid earthquakes in "Earthquakes" by W. H. Hobbs (pp. 174-77), D. Appleton & Co., New York, 1907.

"Please inform me how near completion the Cape to Cairo R.R. is at present? H. W. N., Saratoga Springs."

The northern section of the road has been extended from Khartum up the Blue Nile to Wad Madani, about 100 miles. It will be built up that river to Senaar and perhaps farther before it turns to the White Nile valley, the idea being to circumvent the wide swamp region of the White Nile. There is now steam transportation from the Mediterranean up the Nile by rail to Khartum and on to Gondokoro by steamboat, within less than 400 miles of Victoria Nyanza. From the south, the line now in operation extends from Cape Town and Victoria Falls to Broken Hill, the present terminus of the main line; and a branch line to the N. W. is now in operation to the copper field of Katanga (Belgian Congo), so that there is continuous rail connection from Cape Town over 2,100 miles north. The whole line (Cape to Cairo) will be about 6,870 miles long, and about four-fifths of the distance is now covered by rail or steamer.

"What map of Russia showing the ethnography of that empire in the 19th century is to be recommended?"

An excellent map is "Carte ethnographique de la Russie d'Europe" by D. Aitoff. Scale, 1:12, 500,000, or 197.2 statute miles to an inch. It was published in *Annales de Géographie*, No. 79 (1906), by Armand Colin, 5 Rue de Mezières, Paris, France. Price 4 frs. Though small, it is a good, clear map in seventeen tints showing distribution of races in Russia in Europe and in Caucasia. Based on the census of 1897.